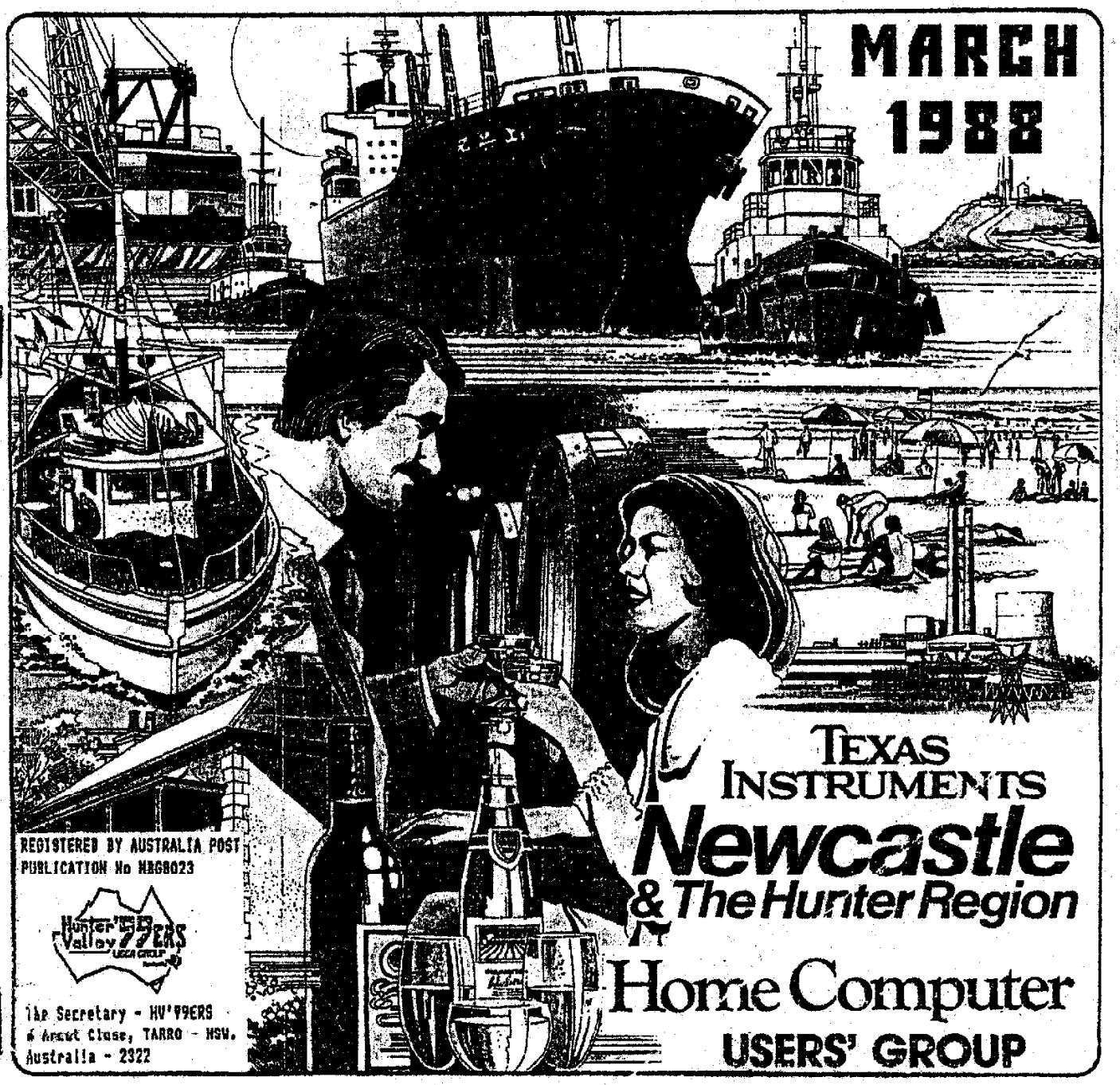
HUNTER VALLEY 99'ERS NEWS

TI 99/4A

HOME COMPUTER NEWSLETTER



REGISTERED BY AUSTRALIA POST
PUBLICATION No NBG8023

The Secretary - HV'99ERS
6 Arnot Close, TARRO - NSW.
Australia - 2322

YOUR COMMITTEE

STD AREA CODE 049

PRESIDENT
Paul Mulvaney
26 Marmong St.,
MARMONG POINT 2284
Ph. 583623

VICE PRESIDENT
Alan Lawrence
35 Bayview St.,
WARNERS BAY 2282
Ph. 486509

SECRETARY
Albert Anderson
6 Arcot Close,
TARRO 2322
Ph. 662602
Viatel 496626020

TREASURER
Peter Smith
8 Glebe St.,
EAST MAITLAND 2322
Ph. 336164
Viatel 493361640

SOFTWARE LIBRARIAN
Alan Franks
822 Pacific Hwy.,
MARKS POINT 2280
Ph. 459170

PUBLICATIONS LIBRARIAN
Allen (Joe) Wright
77 Andrew Rd.,
VALENTINE 2280
Ph. 468120

EDITOR
Brian Woods
9 Thirlmere Pde.,
TARRO 2322
Ph. 662307
Viatel 496623070

PURCHASING CO-ORDINATOR
Bob MacClure
75 Deborah St.,
KOTARA SOUTH 2288
Ph. 437431

TECHNICAL CO-ORDINATOR
Gary Jones
53 Janet St.,
JESMOND 2299
Ph. 573744

SIGs CO-ORDINATOR
Brian Rutherford
9 Bombala St.,
DUDLEY 2290
Ph. 498184

CONTRIBUTIONS

Members and non members are invited to contribute articles for publication in HV99 NEWS.

Any copy intended for publication may be typed, hand written, or submited on tape/disc media as files suitable for use with TI Writer (ie. DIS/FIX 80 or DIS/VAR 80). A suitable Public Domain word processor program will be supplied if required by the club librarian.

Please include along with your article sufficient information to enable the file to be read by the Editor eg. File Name etc. The preferred format is 35 columns and page length 66 lines, right justified.

All articles printed in HV99 NEWS (unless notified otherwise) are considered to be Public Domain. Other user groups wishing to reproduce material from HV99 NEWS may feel free to do so as long as the source and author are recognised.

Articles for publication can be submitted to the Editor, ALL other club related correspondence should be addressed to The Secretary.

DISCLAIMER

The HV99 NEWS is the official newsletter of the HUNTER VALLEY NINETY NINE USER GROUP.

Whilst every effort is made to ensure the correctness and accuracy of the information contained therin, be it of general, technical, or programming nature, no responsibility can be accepted by HV99 NEWS as a result of applying such information.

The views expressed in the articles in this publication are the views of the author/s and are not necessarily the views of the Committee, Editor or members.

TEXAS INSTRUMENTS trademarks, names and logos are all copyright to TEXAS INSTRUMENTS.

HV99 is a non profit group of TI99/4A computer users, not affiliated in any way with TEXAS INSTRUMENTS.

SECRETARYS REPORT

FROM ALBERT ANDERSON

Back again for the March issue and things have quietened down somewhat from the previous two months. At the February monthly meeting another new programming effort was previewed by Joe Wright. This is a GENEOLOGY program which Joe has been working on for some time and the results so far look to be excellent. Some very smart work has gone into this one and a release is expected soon. By the way, Joe, in true 4A user style has used this experience as an aid to help teach himself assembly language programming and at the same time produce something very usable particularly if your interest lay along family ancestry.

In last months column there was mention of an 'adopt a club' proposal to the membership in an effort to maintain the high exchange newsletter profile that HV99 has developed and benefited from since inception as a group. Once again in true user style the result was fantastic as out of the 22 overseas exchange groups 17 have been adopted for mailout. The original newsletters received by these groups will be included with the monthly newsletters of the adopting parents starting this month. Thanks go to those people for participating. If others are still interested in mailing to an overseas group (and at the same time establishing yourself a contact) there are still a few left... contact me for info.

News from the Brisbane groups Garry Christiansen is that the long awaited GENEVE computer has hit our shores. A bit of a problem with a MYARC formatted disk was overcome when Tony McGovern lent his disk controller. With a bit of luck the Hunter Valley group will get to see the Geneve soon as the Brisbane group may send one south for us to have a play with.

Another noteworthy item comes from the Sydney groups newsletter in that the PICASSO PUBLISHER program by Arto Heino is WRONGLY doing the rounds of software collectors under the FAIRWARE label. THIS IS NOT SO. It is a proprietary program copywritten by the author and as such should be treated that way. Could other newsletter editors assist the author by passing on this information.

On the local front, the annual Microcomputing Exhibition is coming up soon. HV99 are making enquiries regarding taking part in this exhibition, which in computing terms should be like showing off dinosaur bones - but we'll show em!! If any members may be able able to man a booth or help out for this show could you please contact a committee person.

On the overseas front the exchange newsletters still keep coming up with heaps of new and interesting things to do with the 4A and there is more detail on this in Joe's news column. To our Canadian friends congratulations on the running of the winter Olympics. It was a delight to watch and was just like being there. One question... is all of Canada similar to Alberta??? It looks magnificent!!!

That's all from me this month. Bye...

Hunter Valley '99ERS USER GROUP Newcastle

IN THE NEWS

A POT POURRI OF LOCAL AND INTERNATIONAL NEWS COMPILED BY

joe wright

This month is a BUMPER info month. The first bit of news is that the Brisbane U.G. members who had ordered the GENEVE have now received them. Talking to Gary Christensen recently, he sounded like a "kid with a new toy". Look forward to their comments and opinions on this machine over the next few months. To me it seems the direction that I will head over the next 12 months or so is to follow Gary and his friends to a GENEVE.

GENEOLOGY.
Over the last 9 months or so I have been teaching myself to programme in Assembly language. The experience had been most rewarding, I set myself a goal to write a programme as a method of keeping my nose to the grind stone. Unfortunately my new found interest in the topic of Geneology and the development of the programme has inhibited the learning process of Assembly language. There are a lot of nooks and crannies that I have yet to explore with assembly. All that aside though I have in the process written a GENEOLOGY RECORD KEEPING programme.

My intention was to write a programme that would allow me to produce in book form a geneological record of my family tree. Not being "into" Geneology at the start I have produced a programme tailored to my specific needs and not those of a full blown Geneologist. The programme allows the accumulation of data for 98 persons. As the data for one person is entered, data is also entered and a record created for that persons parents and spouse. So to enter one persons record can take 4 of the 98 records available, that is; first person, father, mother and spouse. Two more spouses can be added taking a further 2 records.

The family line code I have used allows records to be kept out to cousins, any further creates a clash of family line codes. The 98 records has been more than enough room for me to trace one family line, back to the first fleet with plenty of records left.
The data recorded for each person is;

SURNAME	15 CHAR
FIRST NAME	12 CHAR
SECOND NAME	12 CHAR
DATE OF BIRTH	
PLACE OF BIRTH	15 CHAR
COUNTRY OF BIRTH	2 DIGIT CODE
BIRTH CERT HELD	Y/N
DATE OF DEATH	
PLACE OF DEATH	15 CHAR
RECORDED ILLNESS	2 DIGIT CODE
DEATH CERT HELD	Y/N
NUMBER OF CHILDREN	Ø-15
FATHER FULL DETAILS	AS FOR THIS PERSON
MOTHER FULL DETAILS	AS FOR THIS PERSON
DATE OF MARRIAGE	
PLACE OF MARRIAGE	15 CHAR
MARRIAGE CERT HELD	Y/N
SPOUSE (UP TO THREE)	FULL DETAILS AS FOR THIS PERSON
PATERNAL FAMILY LINE CODE	
MATERNAL FAMILY LINE CODE	
TEXT FILE FILENAME	5 CHAR
X-REF FILENAME	5 CHAR

The complete tree of 98 persons resides in memory so access is very fast. It of course can be save to disk. Full editing of all data can be done through the review mode.

In review mode several function keys are envoked.

FUNC 4 Father
FUNC 5 Mother
FUNC 6 Children
FUNC 7 Print detail report
FUNC 8 Enter amend mode
CTRL D Delete person

These are fully explained in the documentation.

Each person entered is given a serial number, this serial number is used for all the linking within the programme. It is also intended to be used as a page number in the book compiled using Detailed Printout for each person. The detail printout can be saved to disc and then text added through Funnelweb editor about 20/30 lines.

The Detail printout gives the full details of the person the printout is for. Plus short details for both parents, up to 3 spouses and lists the children in order of birth. The serial number of each of these is also on the printout so that following the serial numbers one can trace a family line through the book.

I have the code for a 4 generation printout 80% complete and it should be in the programme within the next month. I have many ideas for enhancements to the programme. Any enhancements added will not cause the previously entered data to have to be re-entered, I am not that malicious!. I still have room in the data cell for each person for a small amount of data to be added.

At present my old mate Brian Woods has been running and finding bugs in the programme. I am now fairly confident that it can be let loose on the world to create all sorts of havoc. If you are interested in a copy either contact me or see our Librarian Alan Franks. I am interested in constructive comment, so if you do use it please pass on your comments AND your ideas for enhancements.

GENIAL Computer's EPROM for the HORIZON RAMDISK.
The Lima 99/4A U.G. in the USA have a prolific writer in Charles Good, his articles are always well written, readable, useful and there are lots of them. If you haven't had the chance to read through BITS,BYTES and PIXELS in the library then I suggest you do so as soon as you can. In the November Newsletter he has an excellent review of the Genial Computer EPROM for the Horizon Ramdisk. I have taken some paragraphs from that review and retyped them below.
"A solution to RAM based ROS unreliability or total ROS loss is the Horizon Ramdisk eprom sold by Genial Computer. This eprom provides an operating system very similar to MENU v6.3 except that it is locked up in ROM and cannot be damaged by bad data being sent to it. This eprom is (as I understand from scanning other group's newsletters) required to use a Horizon Ramdisk with the 9640 computer. On the 99/4A the eprom is most suitable for systems with only one Horizon Ramdisk that is set to CRU address of >1000. Things get complicated for Ramdisks at other CRU addresses and when using multiple ramdisk cards. The Genial eprom ROS is specifically designed to be easily compatible with FUNNELWEB files on the Ramdisk, more so than the two other Horizon systems.

Installation of the Genial eprom is easy. All you do is pull one of the original Horizon RAM chips out of it's socket and replace it with the Genial eprom. Then you solder one wire already attached to the eprom to a particular pin on an adjacent chip.

As with MENU v6.3, the Genial eprom provides an extra 4k (16 sectors) of data storage compared with the "official" ROS. This means that 90k, 180k, and 256k Horizon Ramdisks will actually store 94k. 184k and 260k of data respectively with the Genial eprom installed."

CHARLES GOOD AGAIN.
Writing in the December BITS, BYTES and PIXELS, passes on his IMPRESSIONS OF THE CHICAGO FAIRE.
Once again I have taken the liberty to retype some of his comments.

"BATTERY BACKED UP SUPER RAM CARDS.
Bud Mills Services had on display a PE Box with John Johnson's Menu v7.3 operating two DS/DD (384k, 1440 sector) HORIZON RAMDISKS. Complete Horizon Ramdisk kits including board, chips, intructions, and v7.1

Menu operating system software are available in 1 MEG(!!!), 512k, 384k, 192k, and 96k sizes. The increased memory sizes are made possible by using 32k chips instead of the 8k chips that have previously been used on Horizon Ramdisks. V7.1 allows the user to make one Horizon act as more than one disk drive if desired. Already assembled, tested, and guaranteed 92k, 192k, (DS/SD 720 sectors) were available at the faire at the Horizon Computer Ltd table. Already built 256/32k combination ramdisk/memory expansion (US$260), straight 256k ramdisk (US$235) and 1 MEG ramdisk (US$450) were advertised at the faire as available from MIDWEST ENGINEERING.

Products in the above paragraph are all based on the Horizon Ramdisk and are available NOW! Rave 99, selling IBM style keyboards at the faire, had a handout announcing a memory enhancement card available in December. This battery backed card has up to 544k memory and up to 4 can be used in the PE Box for over 2 MEG of memory storage. Price for the 544k version is US$400."

INDEX TO EVERYTHING FOR THE TI.
From newsbytes in the January Micropendium,
"Bill Gaskill, of Grand Junction, Colorado, is attempting to put together an index "literally everything that I can find that has been written about the TI 99/4 and 4A."

"Currently, I have information available from most of the major magazines that supported the 99, many books, monthly tabloids and a couple of user group newsletters, I am soliciting any and all contributions for this project, with the ultimate goal being to offer any contributing user a 26-disk (A-Z) Master Index for the cost of the diskettes, mailer and the postage." Gaskills says the index will be made available to non-participants for a nominal fee.

Gaskills says the index will be in a D/V80 format. He also plans to offer an Extended Basic or assembly language utility that will allow the user to find items in the index. Anyone who wishes to contribute to the project is encouraged to write to Gaskill at 2321 Wintergreen Dr, Grand Junction, CO 81506

FORTH CLEARING HOUSE INITIATED BY USER.
Also from Micropendium;
"John H. Carver Jr. has announced his intention of acting as a clearing house for Forth programmers.

He asks that anyone "even remotely interested in Forth" write him at #1, Box 125-2, Bringhurst IN 46913 or leave messages for him on GEnie, Compuserve, The Source or Delphi. He also asks that readers post this message on their local BBS.

Carver said he would like to point out the existence of the TI-Forth International Information Center, 4122 Glewnway St, Wauwatosa, WI 53222, which has public domain Forth applications and tutorials, and the Forth Interest Group, PO BOX 8231, SAN JOSE, CA 95155, which offers memberships for US$30 per year."

GRAMULATOR.
Also from Micropendium;
"The Gramulator, described as a direct equivalent for the out-of-production GRAM Kracker by MG has been designed by Mark Van Coppenole of Haverhill Massachusetts. A wire wrapped prototype has been demonstrated to Massachusetts users groups.

Van Coppernole has not built production models yet. He says to go from a prototype to a production model would require an investment of about $1000. He is interested in hearing from users who would consider purchasing the product or who have questions about it."

For further information or to express interest in purchasing the Gramulator, contact Mark Van Coppernole, 52 Audobon Rd, Haverhill, Ma 01830. USA.

MULTI-FUNCTION CARD.
Peter Schubert writing in the December TISHUG News Digest has further details on the PE Box card he has developed.
"The new MULTI-FUNCTION CARD was displayed and used to run a system at the November tutorial day. I now have two prototype multi-cards, both of which have functioned reliably, and one has been used in different PE Boxes. This card was designed for the following reasons:-

1) To provide an advanced double density controller more suited to todays modern disk drives and software, developed to run at faster speeds, and including extra CALLS provided by CORCOMP and MYARC designs as well as our own enhancements.

2) To provide a source of local RS232 CARDS which have become scarce (many have become faulty and are uneconomical to repair due to use of special IC's), and also to enhance it to meet todays extra needs. Additional commands include VIATEL (PRESTEL) 1200/75 baud, 75/1200, MIDI (31250 baud), RTTY 50 baud, and extra speeds of 50 baud and 19200 baud, The PIO port can also be called 'PRINT'.

3) Memory expansion of 32k eliminates need for separate 32k card in PE Box.

4) Only one power supply is required for all functions to work, although the NEG supply is used for RS232. This allows the MULTI-CARD to be used in home-made PE Box systems, including the Poormans Disk system featured in earlier TND.

5) It is a buffered card for extra reliability and compatability with other commercial PE boards. Also the ports use standard TI connectors.

6) All these functions can be provided on one card to save space in your PE Box, and keep costs to a minimum.

This card represents 2 years of part-time design and development work on my part, and it has resulted in a number of other peripherals being developed for our little orphan TI in the process, notably the MINI-PE SYSTEM, which is a stand alone version of this card, and the single chip 32k design now used as a kit for mounting within console.

I am in the process of ordering pcb's now so that production can start early next year, and I would like to hear from anyone interested in either the full MULTI-CARD or a partial RS232 or Disk only card. Cost is expected to be around A$230 for disk control only, A$170 for RS232 only, and a maximum of A$390 for all including 32k.

A MULTI-CARD is also available for loan to TISHUG regional groups. Contact me on (02)358602 or write;

P.Schubert
P.O. BOX 28
KINGS CROSS 2011
N.S.W.
AUSTRALIA.

(Peter Schubert has produced some fine hardware for TI users and I am pleased to see that some of our members have support Peter by purchasing his MINI-PE System. This support can only encourage him to make further efforts with hardware for us users. Joe W.)

--RUMOURS-----RUMOURS-----RUMOURS--

QED.
While on hardware Neil Quigg our own intrepid hardware hacker is rumoured to be working on his own Battery backed ramdisk, it will be interesting to see what he comes up with.

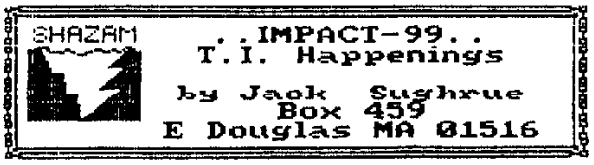
BOOK KEEPING.
Also from the rumour department comes news that our resident Medico is puting the finishing touches to a book keeping programme. Had a sneak preview a few days ago, impressed with what I seen!.

THE HUB
Not much noise from the HUB lately maybe they are all out picking potatoes!

That's about it for this month, as Tony McGovern would say, "my two typing fingers are sore, and the occasional stroke of the space bar with my thumb has over worked it".

If you have something you would like entered into the Rumours Department contact me, I do have the right of VETO!!!

Joe Wright.



1988 BLUE RIBBON WINNER

The first annual IMPACT/99 Blue Ribbon Software Winner is given this year to Asgard Software!

Asgard continues to provide unusual and exciting programs and specialty files for the TI owner, while moving right into the Geneve upgrading. This software house has provided some peculiar - if not downright eccentric - pieces of software for many years now. Just when you think nothing new can possibly come out for our little marvel, Asgard leaps to the fore with something new, at the least, and mind-boggling, at the best.

There are a lot of excellent software companies out there - most Mom 'n Pop type (even though run, usually, by VERY YOUNG people)- who are producing or distributing wonderful things for the wonderful TI; companies like TIGERCUB (the granddaddy of the TOP QUALITY FOR LOW PRICE companies), Databiotics, Genial Computerware (a branch of the GENIAL TRAVELER diskazine, one of the best buys in the industry), DOS (Disk Only Software), and many others. So coming to this choice with this award was not an easy matter. The idea to even CREATE such an award came from John Zittrain and Ron Albright. Last year they named Asgard "Computer Software Company of the Year." I thought a lot about the idea of giving an award as a way of announcing to the software companies that WE'RE STILL HERE and we still appreciate all that is being done to support the 99. Too often these companies (and the long-suffering Fairware authors) hear only the complaints and none of the accolades.

Thus, "The IMPACT/99 Blue Ribbon for 1988!"

Asgard Software (P.O. Box 10306, Rockville, MD 20850) is owned and operated by Chris Bobbitt. He is also one of the programmer/artists among a large stable of programmer/artists. He actively seeks programmers to create and develop materials for his company, contracts with the authors, packages and promotes the finished products always in a professional way. There is nothing slipshod or amateurish about anything put out by Asgard. Mr. Bobbitt has maintained one of the highest standards of professional excellence of any software company in the orphaned industry.

But it is not just the packaging and distribution that make for a successful software company. Without good-quality software, all else is gesture. It is here - providing that consistent quality - that Bobbitt and Asgard shine.

The latest catalog (free) is as ecletic a collection as would please the most demanding connoisseur. The 34 disks include a good share of games (or programmer's dream of utilities to change or create games), a collection of graphics programs that is second to no one, some incredible utilities (EZ-KEYS being one of the most unbelievable I've ever encountered), and some peculiar miscellaneous programs that are for a more discriminating audience. With regard to the latter, Asgard is the only company I know of that would publish such esoteric stuff as a RECIPE WRITER (and follow it up with a series of specialized recipes called ELECTRONIC GOURMET), a STAMP MANAGER, and a freeform database which has nothing like it for any computer I've ever used (TOTAL FILER). I mean, there has to be a very small audience for these specialty items. How many gourmet computer freaks are there? Yet, for those few (Maybe there ARE many!) who are out there, it's really nice to have a company that makes stuff for you and continues to add updates and support disks.

Although I look forward to getting catalogs from ANY company that supports TI - (Anybody out there know what ever happened to PILGRIM'S PRIDE?) -, I really love opening up the latest one from Asgard. I never know what to expect. I DO know, however, that I'm not going to be ripped off. Of the 34 disks, more than 20 are under $10. Those are Fairware prices! And all the programs have warranties and exchange and upgrade policies. Bobbitt says he continues to keep the low prices as his way of trying to keep the market viable and to thwart pirates. (It's hardly worth pirating a $5.95 disk, particularly if you miss the excellent manuals that come with the programs.). I like that philosophy.

But I particularly like Bobbitt's consistent policy of not putting protections on the disks or files. Hooray! I make backups of everything and salt the originals away. No problem. Then I enjoy peeking and probing the programs, learning all the while and customizing when it suits me. And playing with the thing. This is how many of us learn from the experts. (Almost all I know about computing, for example, came from Jim Peterson of TIGERCUB Software. His programs, too, are all unprotected. His NUTS 'n BOLTS series is the single biggest influence on TI XB programmers that has EVER existed. And like Bobbitt and Asgard, it has always been a policy of Peterson and TIGERCUB to sell only top quality stuff at very low prices.) I almost never buy anything that has super protections on it, like the QS stuff. I know it's a way of looking at the piracy thing to be on one side of the fence or another, and I can appreciate other

points of view. For me, I buy lots and lots of hardware and software every year and encourage lots of other people to do the same directly, by mail, and by these reviews. I don't give anybody commercial software. But if I can't get inside, I personally do not want it.

Anyway, I particularly like the Asgard policy.

The PROGRAMS!!!!

Yes, the programs. That is, after all, how my decision finally came to be made. There are six games listed (plus some that come with the Tunnel of Doom Editor) and they are superb. And quite different from one another. BALLOON WARS is an old favorite that has been updated. You fly a balloon across enemy lines in WWI Europe. It's very tricky business, this balloon version of the flying programs (for airplanes) making the rounds these days. Ingenious. Missile Wars (by the great programmer John Behnke) is an alien-attack game that is VERY fast and very well designed. It is tough, fun, and a little frantic. The manual is a model of philosophy. Kirkegard might have approved.

HIGH GRAVITY was, until very recently, my very favorite game of all time after DIABLO. The former is as wonderfully ingenious as anything I can think of. It is not spectacular, has no special effects, is simple in concept, has the added feature of incredible cleverness. Is addictive. I keep it right on my PLUS! disk to automatically sit in my RAM disk for any time I need a fix. Then along comes Donn Granros and Ed Johnson to put out the remarkable LEGENDS. This is a graphic/text adventure. More in the slash and hack style of D & D than in the ruminating style of Infocom. I've never seen a D & D type of game for the TI that was anywhere nearly in the same class. LEGENDS is simply terrific! I love it. It is addictive. I'm one of these people who plays a lot of games. A game freak. No matter how hard I try to be a grownup, responsible person, I am doomed to failure. Thank goodness. I have all sorts of work to do. Papers need correcting. Articles need writing. Letters, too. All kinds of things NEED to be done on my computer. And time is scarce, as it is for everyone.

But before I do anything worthwhile, I decide to play LEGENDS "for just a few minutes to unwind." It doesn't work. I don't work. I don't care! LEGENDS is more fun.

This fast (and fast-paced) two-disk game is colorful and animated. You (and up to three others) visit a strange island. It has inns, a training area for experienced war-party members, a store for weapons, another for magic items. When you travel this land of forests and rivers and inns and mountains you will need to be constantly on the alert. For much awaits you.

So after you and your party explore and experience the island, hopefully gaining much wealth along the way, stopping at inns for a much-deserved break, you might hop the nearest teleporting rock to a reasonable facsimile of civilization where you may train and develop and prepare yourself for...

THE DUNGEONS!

twist in this maze-like atmosphere: friendly encounters.

All along the way - on island or under island - you'll encounter weird creatures. The graphics are exceptional. The patience you'll need to get through them must also be exceptional. You must fight, cast spells, negotiate, and run at the right times. The better you get at this game, the more the challenge.

LEGENDS is one of the few superior games that came out for the TI this year. It is a game for many.

There are two other games listed in the Asgard catalog (THE HAUNTED MINE II and THE VOLCANO FORTRESS). I've never played either of them, but I wouldn't hesitate getting them, as I've never gotten anything from this company that didn't exceed my expectations.

Next IMPACT/99 I'll review three of the best (and, for me, most-used) programs I own. They are all Asgard and all exceptional: EZ-KEYS, FONTWRITER II, and TOTAL FILER - lest you think life is all fun and games for me.

CONGRATULATIONS, ASGARD! Keep up the great TI efforts!

BUILD YOUR OWN REAL TIME CLOCK

by

JOHN PAINE

I have recently been spoiled by using the John Johnson Menu program in conjunction with the ramdisk installed in my PE Box . The menu program does so much that it is hard to believe that with extra hardware in the system, it could do more.

The extra's supported by software include the necessary routines to access the three known Real Time Clock peripherals that have been on the market for some time.

The purpose of this note is to describe a fourth Clock that is compatible with the menu programme as well as being it's own standalone device that can be used by members who may not have a ramdisk.

Before starting lets look at the existing Clocks available for the TI.

1) CorComp Triple Tech Card.

This is a PE box card that uses an OKI clock chip and can be easily read and altered and used under basic. Its major disadvantage is that it is controlled by a DSR and is mapped into memory location 4000. The OKI chip is relatively small in size but difficult to implement because of the need for external latches and support chips. CorComp also released a stand alone unit that plugged into the side of the console.

2) MBP Clock Card

Once again, this is a PE box card, but used a National Clock chip. The MBP card is addressed to operate in the memory mapped block starting at address 8640. The National chip is much larger in size but requires less support in terms of extra chips. Once again simple basic programs can be used to set and read the clock.

Because of the memory address location of the clock chip, it is necessary to incorporate a call sound statement in any basic program immediately following the necessary call load statement used to 'poke' the necessary values into the clock registers. The call sound statement will turn off the sound generator, otherwise the noise will drive you crazy. Like the Triple Tech card mentioned above, the MBP card is battery backed.

3) John Clulow Clock.

I have only seen some sketchy documentation on the Clulow clock but it appears to use the same chip as the MBP card and is mapped in almost the same area as the MPB. I will assume that the same comments will apply as with the MBP.

As stated earlier, all these clocks are built around PE box cards, so with this in mind, the following circuits and ideas are based on a stand alone system which can be built onto an existing peripheral card, into an existing external peripheral such as speech, Thermal Printer, Stand alone RS232 or Stand alone Disk controller, not to mention the console itself. The minimum requirement for operation is possession of an Extended Basic Module to set the time.

You can read time with basic and even set the time with basic and E/A or Minimem, but you will have to write your own software. I will provide a disk to any user group with some utilities and set clock programmes written in Extended Basic.

Now down to business, the clock that I am about to describe is based on the same National clock chip as used by MBP and will be mapped into the same memory address. The prototype clock was built on a small Tandy Prototype

card which cost $1.67 and the total project including clock chip, crystal, resistors, diodes ,dry cell batteries (in this case) and chips cost less than $30.00.

I built the total package including batteries into the top compartment of the Speech Synthesizer, which allowed for complete stand alone performance and offered the added advantage of

portability, to show to other members etc.

It is not my intention to describe a wire by wire method of assembly because of the many possible locations for mounting. Instead refer to the circuit diagram below for connection of the clock to the major bus connections.

You will also note that the circuit shows different options for battery backup. The prototype initially only used dry cells, but was upgraded to nickel-cadmium cells which can be recharged when power is supplied by the host peripheral. Although a lithium battery option is shown, I consider the cost to be too high for such a project.

The parts needed are:
A suitable board for mounting...eg Tandy Proto board
one only MM58167 clock chip ... From NSD Melbourne
one 32,768 khz crystal From NSD
one 30pf variable capacitor Geoff Woods
NOTE: The crystal and Trimmer can be salvaged from an old LCD digital watch.
two only 74ls138 decoders
one 74ls04 hex inverter
two or three 1N914/1N4148 diodes
one 22pf capacitor
one 1K resistor
one 220 k resistor

one 100 ohm resistor (if using NI-Cads)
Batteries of your choice. I used 1/2 length AA cells from Tandy although later used a PC board mount NI-CAD pack from Radio Spares ($9.00 approx)
A heap of ribbon cable to connect the clock to the bus.
There are 29 wires to be soldered to the expansion bus.
This includes the 5 volt power and ground.

The actual wiring on the board is simple and is easily accommodated with point to point wiring. The external connections to the bus are the most tiresome.

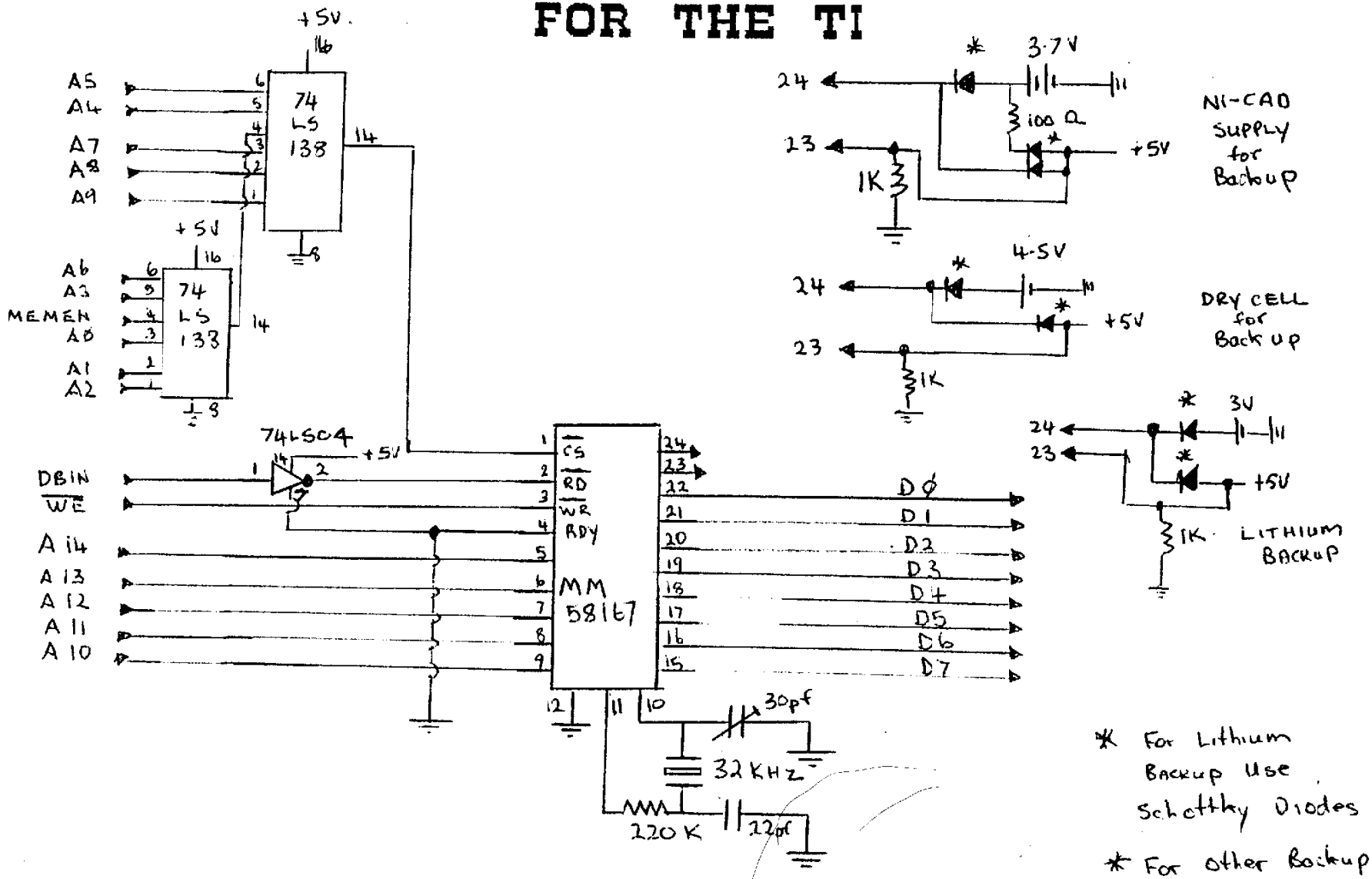
To calibrate the clock, National Semiconductor recommend that a digital frequency meter be connected to pin 19 of the clock chip and adjust the trimmer until an approximate frequency of 500 Hz is achieved.
I just powered up and and set the clock and after three weeks the clock lost 5 seconds when compared to my watch. I can live with that,it is quicker to load the setclock routine than muck around with calibration.

Load the program JUSTCLOCK from the utility disk (XB). Immediately power is connected the clock should startup and count from 00:00:00. If all is ok then then the seconds will tick upwards. Obviously then after 59 seconds the minutes will increment. If the seconds do not increment you will have to check the crystal, 220k resistor and capacitors connecting to pins 11 and 10 of the clock chip. If nothing displays then check address and data lines.

The disk that I mentioned above will have a number of utilities and sample programmes that can be used to set the clock and also to read the clock. There is also a merge program that can be added to any XB program to read and display the clock. I have also included a couple of cataloging programs which also make use of the clock and will date and time stamp the printed listing.

Those of you that have a ramdisk with Menu 7.1 will immediately see the benefit of the clock but those without should nor despair, the clock is very usable. In time I will release more utilities for the clock and perhaps some of the brighter XB programmers can come up with other applications.

A REAL TIME CLOCK FOR THE TI



RANDOM BYTES

with

BOB CARMANY

Over the past year there have been a number of programs that have appeared both in this column and others throughout the newsletter. Very few of them were written with the idea of saving bytes of memory and optimizing code. Usually, there isn't much incentive to maximize memory usage. After all, how many of you have ever gotten a "memory full" message with XB and 32K (or more) attached?

Besides simply conserving memory, compact code can have an added effect -- the program will run quicker and more efficiently. That can be a definite advantage when you rate the performance of that "revolutionary" application that you just finishing writing.

Tony McGovern's fine set of XB tutorials explain how to conserve bytes of memory by replacing variables with constants, using subroutines to replace frequently used code, etc. There are, however, some more subtle methods for conserving memory that will actually speed up program execution.

One of the first things that I learned when I started programming in XB was to squeeze as many statements as I could on each program line. This saves memory by eliminating line numbers and speeds execution by similarly eliminating the need for the program to process extra lines of code.

By looking at what XB does when you press <ENTER>, we can easily see one way to conserve space and add a few more characters in each line. It doesn't matter if you have bothered to add a space between the last character in a statement and the statement seperater (ie. "::"). When you press <ENTER>, XB automatically adds the space for you! So, when entering the code for multi-statement lines, there is no need to space between the statement and the double colon ("::") -- you can get more characters in each line that way.

Another way to fill up program lines to their full potential is to take advantage of <FCTN-8> (REDO) when you are typing in your lines of code. In one recent publication, there was a plaintive "letter to the editor" complaining that the program lines in the magazine were too long and wouldn't fit the same way that they were listed. Hogwash!!

Try this with a long bit of text --- or more simply, just do the following:

Enter XB and type in "NUM 100".

When the line number appears, type in "DISPLAY AT(1,1):"

From this point, just hit the 'X' key until you get that obnoxious "honk" at the end of line 4.

Press <ENTER>. You will get an error message. Then press <FCTN-8> and the line that you just typed in will re-appear. Use the cursor keys to go to the last 'X' and continue typing --- you now have another half line available!

That is one more subtle way to get the maximum use out of XB. It is just one of the things that TI "forgot" to tell us. It works every time!

Here are some "PEEKs" and "LOADs" that might be of interest to you.

```
CALL PEEK(8194,A,B,C,D)::(C-A)X256+
D-B
```
Free space in low memory after CALL INIT or CALL LOAD(DSKx.xxx")

```
CALL      PEEK(-31866,A,B)::A*256+B-
41023
```
Free program space in high memory.

```
CALL PEEK(-31936,A,B)::A*256+B-2487
```
Exact amount of free stack space while the program is running.

```
CALL LOAD(-31873,x)
```
Start printing at column x (x=3 to 30)

```
CALL LOAD(-31877,x)
```
32= Sprite coincidence, 64= 5 Sprites on a row.

```
CALL LOAD(-32187,9)
```
0 line number.

That about does it for this month's column. Next month we will look at some more XB hints and a couple of short XB programs. Til then . .

BASIC CLASS NOTES

prepared by PAUL MULVANEY

Following on from last months notes here is a subroutine that can be incorporated into a program for screen printing.

```
100 CALL CLEAR
110 INPUT "ENTER STRING ":T$
120 INPUT "ROW NUMBER ":R
130 INPUT "COLUMN ":C
140 CALL CLEAR
150 GOSUB 250
160 T$=" GO AGAIN <Y OR N> "
170 R=24
180 C=8
190 GOSUB 250
200 CALL KEY(3,K,S)
210 IF S<1 THEN 200
220 IF K=89 THEN 100
230 IF K<>78 THEN 200
240 END
250 FOR L=1 TO LEN(T$)
260 CALL HCHAR(R,C+L,ASC(SEG$(T$,L,1)))
270 NEXT L
280 RETURN
```

Lines 110, 120 and 130 allow the string, row and column information to be entered. 140 clears the screen and 150 sends control to the printing subroutine. After printing control returns to 160, 170 and 180 where new information is loaded and 190 sends it off to be printed. 200 to 240 checks if you want to go again or end. Note the use of keyboard 3 so it does not matter if the alpha lock is up or down.
If the column specified is too far to the right for the length of the string the printing will start but the program will crash when the printing goes off screen. To prevent this a little error test can be used. Add to the program;

```
241 X=LEN(T$)
243 IF (X+C>31)THEN 245 ELSE 250
245 T$="STRING TOO LONG FOR COLUMN"
247 R=23
249 C=2
CHANGE line 150 GOSUB 241
```

To test the row you could add
122 IF R>23 THEN 120
This prevents printing on the bottom line as this is where the GO AGAIN is printed.

To provide automatic centering alter line -
260 CALL HCHAR(R,16-(LEN(T$)/2)+L,ASC(SEG$(T$,L,1)))
This makes line 130 redundant and it should be removed, also line 243 should be altered to -
243 if X>32 THEN 245 ELSE 250

As with all programming instruction every example cannot be given, it is a matter of using an idea and modifying it to suit the need. If vertical printing is required the above examples can be utilised but the incrementing needs to be done to the row instead of the column. Remember either HCHAR or VCHAR can be used but it is easier to recognise vertical printing if VCHAR is used.

```
260 CALL VCHAR(R+L,C,ASC(SEG$(T$,L,1)))
```

GRAPHICS COMPAT-ABILITY

This article, by Don MacClellan of the Bluegrass Computer Society, Inc, came to us via the April 1987 issue of the Houson Users Group newsletter, HUG.

The multitude of graphics programs available for use with the TI-ØØ/4A computer and their compatability with word processing programs has prompted a request for some description of the available programs. This will be an attempt to clarify compatability among most of the later programs. The diagram accompanying this article does not cover everything available, but does cover all of the programs which have been sold through the Society or which are available in the Society library. This discussion is not an attempt to provide a tutorial or review of such a multitude of software, only to give you a perspective and hint of what might suit your needs.

TI-WRITER is the only prudent choice for a word processing program for those having 32K & disk drive/s. There are no others which come close to providing the features & versatility. 'Companion' is probably the logical alternative if Writer were not available. All versions currently available (and there are several) still use TI's Writer program files. The best & least costly is Funnelweb's version which in addition to freeing E/A & Writer from their respective modules, includes C, Disko, Forth and your choice of any others in a disk-based program which really begins to shine when installed on a RamDisk. Almost all of the programs which we will discuss will be used either with text from TI-Writer or through TI-Writer.

The **CSGD** series of graphics programs written by Dave Rose has been more widely accepted by our members and is shown at the top of the diagram. It is compatable with both Prowriter & Epson-Gemini printers, but you must purchase the correct version for your printer. The keyboard or joystick may be used in any of the Editors. The Message printing program is common to CSGD I, II & III.

CSGD I contains the Editor programs for creating you own
1) Character Sets
2) 5 * 5 Graphics
3) Pictures

The Editors, primarily the Character Editor, have undergone 4 revisions including the most recent which was in response to suggestions by our members. Provisions are also made to jockey graphics around to convert between alternate printer types.

CSGD II is basically a banner program which prints the message sideways and 8 times magnified. It also contains the Graphic Editor but not the other Editors. It has gone through three revisions including the latest which now allows printing lower case in the Banner mode.

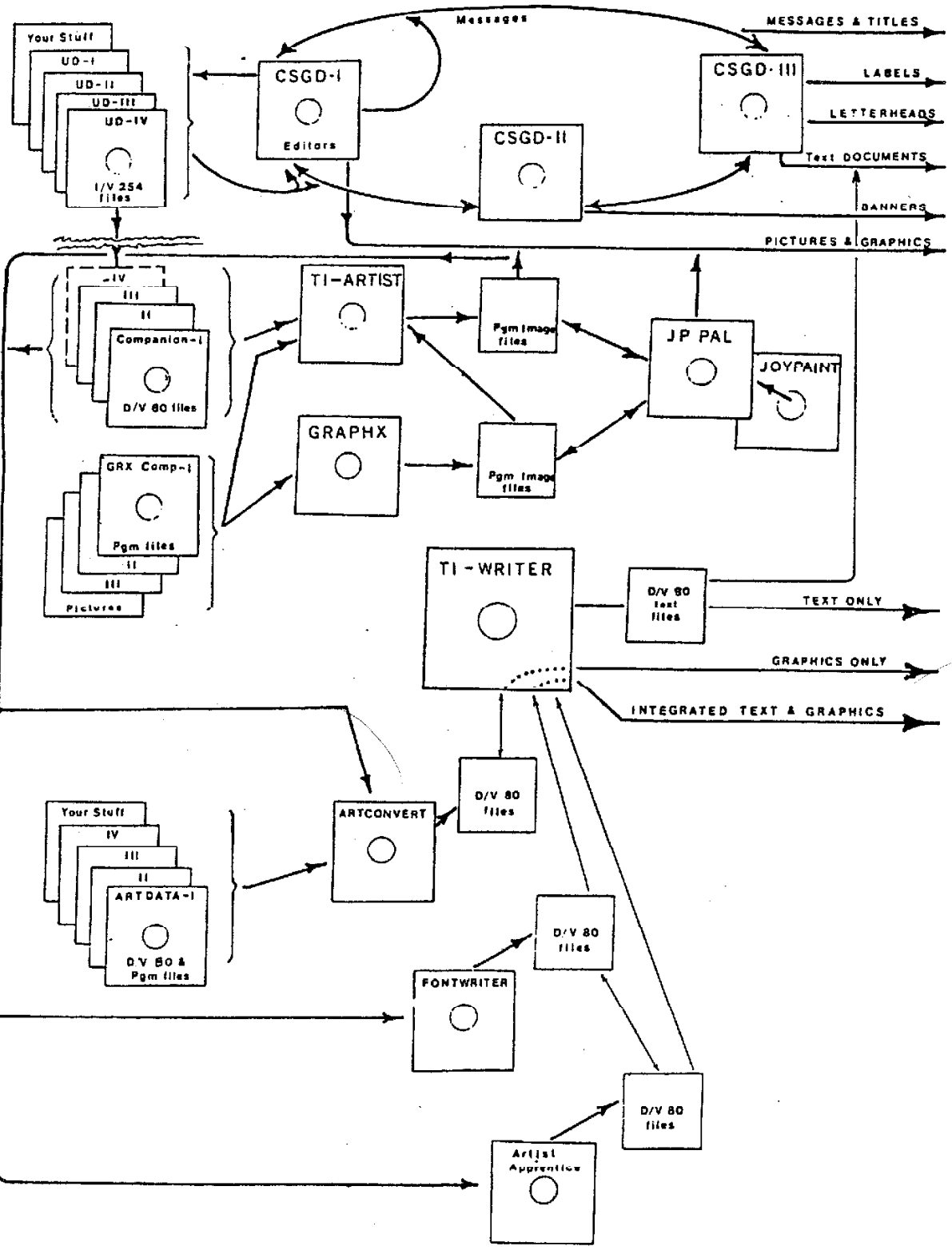
CSGD III is primarily a Label program which produces multi-width labels in 3 heights. It also contains the Message program and an 'easier to operate' Letterhead program. ALL of the files created in CSGD are I/V 254 and are NOT compatable with TI-Writer. The Docuprinter is compatable with Writer and will produce 1 or 2 column texts using a choice of 6 type fonts and D/V 8Ø files through the Formatter. It will not presently handle fonts of greater than 1 row.

The CSGD programs are supported by a multitude of graphics, pictures and more than 1ØØ fonts written by Dave Rose and contributors who use and enjoy his programs.

TI ARTIST is an extremely versatile drawing program written by a talented young man, Chris Faherty. It allows creating, loading and modifying, size changes and many other features using the keyboard or a combination of the keyboard and joystick.

None of the programs described in this discussion can be learned reading the manual. You must use

SOME POPULAR GRAPHICS PROGRAMS



them and make your mistakes - it helps you to remember. TI Artist is in its second revision which now includes Prowriter as well as Epson-Gemini versions. The 2.01 RamDisk configured version is also now available.

Dave Rose has converted his I/V 254 files to D/V 80 files which can be loaded as 'Instances' and they have been released as the COMPANION I-III series. IV should follow soon. In addition, Artist allows the loading of GRAPHX files so that a rather large base of graphics is available to use and modify or create your own.

GRAPHX is a program with quite a few similarities to Artist. It was written in Australia and introduced into the US in 1984. It allows use of the joystick ONLY, and is not compatable with any but the Epson printer. It is a quite versatile drawing board in the hands of an experienced user.

The support graphics available consist of GRAPHX COMPANION I-III & GRAPHX PICTURES. They are all well done though I personally have not purchased the program because of the printer limitation & my distaste for the joystick. The availability of addition graphics is made possible through TI Artist, which will load and save to the Image (program) format. Several of our members prefer to do their creative work with Graphx and use Artist only as a transport.

JOYPAINT & JP PAL are graphics drawing boards well spoken of by their owners. It does have options which allow loading from and saving to Artist &/or Graphx file types. It is currently only compatable with the Epson printer.

ARTCONVERT is a program that converts TI Artist files to TI-Writer files. It is supported by 4 disks of files; ARTDATA I-IV. This permits anyone with TI-Writer to have the ability to print graphics. It will also merge and print two graphics but there are no provisions to include text in the graphic file to complete a document.

One unique feature of Artconvert allows the user to convert one row high Artist fonts for use through TI-Writer. This would allow conversion of all of Rose's 1 row high fonts in Companion I-III to be used though they contain only 70 of 96 typewriter keys if you do not have the Companion series. Compatable with Prowriter and Epson-Gemini.

FONTWRITER by Peter Hoddie is really the first graphics program which is compatable with TI Artist & TI-Writer. With this program you can create your own type fonts, revise Artist & CSGD fonts and use Artist Instances mixed in printed documents, even on the same line.

Although I bought it in Chicago based on Asgard's assurance that it would work on the Prowriter, the second paragraph of the documentation states that it is strictly for Epson-Gemini owners. In a late note Hoddie added a brief text to the diskette which told of the location of the printer codes & I think it can easily be made to work with the better printers. The resources for this program are as broad, as all of the Artist files plus all of those I have indicated earlier which can be converted through Artist.

ARTIST APPRENTICE is similar in several ways to Fontwriter. It allows use of Artist type files, fonts & graphics to produce files which are printed according to 'Scheduler'. It is limited in being compatable only with the Epson printer.

SEVERAL OBSERVATIONS

1) I must admit that my perspective is colored by a need to produce an attractive & readable newsletter for this as well as ASHRAE.
2) Most of the programs are, by necessity, somewhat complex.
3) The MAX-RLE program with an almost infinite picture resource can also be used to convert files between D/V 80, Graphx, Artist & I/V 128. It is available in the library, along with some files for it.
4) It is curious & disappointing that many of the authors limit their market by short sightedly rushing to publish programs without giving some thought to making them 'user adjustable' for the multitude of available printers. With todays computer & support technology, TI

Last month Larry Reid in his article "Whats New", mentioned that he sent to friends in the US a bottle of Vegemite and their subsequent reaction to a bit of Aussie heritage. Reprinted below is that response...

THE AMERICAN USERS GUIDE TO

VEGEMITE

american reaction to aussie heritage
from HARRY BRASHEAR

Because of the TI community, I have a good friend in Australia by the name of Larry Reid. While our relationship has, for the most part, centered around the TI computer, to my way of thinking it has gone beyond that to Christmas presents, maps, and even a bit of advice on life and the pursuit of happiness.

Larry is a real thinking man and has gone to much effort to make his country visable to me. This is, of course, much more difficult for me because American ego has spread our products, etc., around the world to every nook and cranny. Hence, "unique to America" is hard to come by. Anyway, my good friend Larry, ambassador for the Australian working man, sent me this little box in the mail in June. With much anticipation, I whipped out my trusty knife and shredded the top open. There inside were two lovely sea shells (he knows how I love them), and a little brown jar. What could this possibly be?, I wondered. I turned it over and read the label. "VEGEMITE", by Kraft Ltd of Australia.

Thank God for rock and roll! I remember an Australian group named Men At Work that sang of the delights of a "Vegemite sandwich". If it hadn't been for that I would have been totally in the dark. As big as Kraft is in this country, I have no knowledge of this product being made or distributed here.

Also included under the Vegemite name is a short product description... "CONCENTRATED YEAST EXTRACT". That doesn't sound too appetizing! It also stated that five grams of the substance contained half a days supply of a few vitamins. I think I'm in trouble here. I learned a long time ago that anything that's good for you frequently has your body im mind, which has NOTHING to do with your palate. Why do you think I'm a junk food junkie? Oh well, keep remembering that "Men At Work" love the stuff.

I proudly showed the little brown jar to all of my employees who apparently had not heard of "Men At Work". None of them knew anything about Vegemite. Their guesses ranged from brown paint to poison for tomato worms in the "veggie" patch. I guess there's just no accounting for taste in music or culinary art, so I took my little jar and stalked off determined NOT to share my treasure with ANY of them.

Back at the dining room table, I sat down for some more heavy duty label reading. Around the jar lid were product instructions. "SPREAD ON BREAD FOR AN AFTER-SCHOOL SNACK". Hey, they make this stuff for the kids! Fantastic! This is going to be great! It's gotta be if the Aussie kids love it too! Time to get to it.

I twisted off the top and looked inside. The jar is NOT brown, Vegemite is brown. Back to the box it came in, there HAS to be a letter here. Nope, no letter. My good friend has left me on my own with no word on the nature of his "gift". I studied the open jar again. It looks for all the world like axle grease. Shiny and thick. NOBODY would make a FOOD product that looked like that. What the HELL is that smell?? Good lord it's the stuff in the jar. This can't be food, but if I am to ever find out, I'm gonna HAVE to taste it. I tipped my little finger on the top of it and, with great trepidation, licked the substance from my finger. It was like testing for heroin on Miami Vice. It wasn't

heroin! Suddenly I placed the smell. I was reminded of the Great Salt Lake in Utah, which reminded me of fish, which reminded me of liquid fish fertilizer for houseplants. The whole thing was cameing together now. I was the proud possessor of a little jar of emulsified salt herring from the dead sea. I tried it again to be sure of my theory and proved it conclusively.

My policy has always been "if all else fails, follow the instructions" so I went for a knife and a piece of bread as the top of the jar had instructed me to do. I trust my friend Larry and I trust the Kraft Food Company... and I am a brave man. I dipped my knife into that jar like it was peanut butter. I want to tell you, this stuff is neat to play with! It fills all the holes in the bread to start with, and looks kind of like you painted it with shiny brown nail polish. The neat part is that it never runs out. No matter how little you put on the knife, it will stain the entire slice of bread so that it looks like gobs and gobs are on there. The last thing you would want to do is go to a Vegemite dinner with good clothes on. I don't know how many slices I could have coated with that one knifeful. Jesus could have used it at the mount and fed 10 million instead of ten thousand.

I folded the bread and took a big bite. It tasted just like my little finger did, only a lot more of it. While I was trying to get rid of my salt pucker, I opened the bread up and scraped the surface until only the stain remained. Second bite, no help! This little jar could last me all year at the rate of a sandwich a day. Ok, the heck with it. I ate my first Vegemite sandwich down to the last crumb and closed up the jar. The taste of Vegemite goes on as long as its color does. Thankfully though, it doesn't seem to come back for seconds even with my stress-abused stomach.

I think it's possible that Vegemite is Australia's answer to peanut butter. However discussing the product at length with an individual that tasted it at my insistance, she concluded that I am an illogical twit. Based on the size of my jar, (115g, about 2 inches high) Kids couldn't possibly like it all THAT much. Peanut butter comes in one to three lb jars because kids DO like it.

Now I have arrived at the following conclusions about this product.

1. It will NEVER reach our shores in quantity because the FDA is too protective.
2. Since it is a vital food product to the Aussies, they won't come either, (Sad to say).
3. My friend Larry is a marvelous person with an incredible sense of humor.
4. Men At Work are a marvelous group with an incredible sense of "Tom Sawyer" logic.
5. The Aussies are a marvelous people with incredibly dead taste buds.
6. Kraft Foods is a marvelous company that has created one of the most economical "foods" in the world based on the concentration of what would otherwise be totally unusable Australian by-products.

I WILL consume this entire jar of Vegemite, trying it on everything from steak to chicken wings. When I finish the last little blob at the very bottom of the jar, I will be very unhappy. A great friend I have never met has provided me with much inspiration, fun, and a taste of his great land, both figuratively and literally.

Thank you Larry!

THE GREAT DISK MAILOUT

It's almost time to mail out the second set of disks in The Great Software Mailout. Our Software Librarian, Alan, is combing the library for software likely to appeal to a cross section of our members, both near and far.

If you are interested in being put on the mailing list get in touch with Alan AS SOON AS POSSIBLE. If you have received the disks before you are automatically on the list unless you have previously cancelled or haven't as yet paid for the last lot ($12.00 payable to HV99ers, and mailed to Alan, hint, hint).

As in the last mailout, there will be 5 disks of software, covering utilities, games, data base etc. Any member is welcome to avail himself of this offer. Just $12 incl postage for the best in the HV99ers Software Library!!! Put your name on the mailout list, through Alan Franks NOW!!!

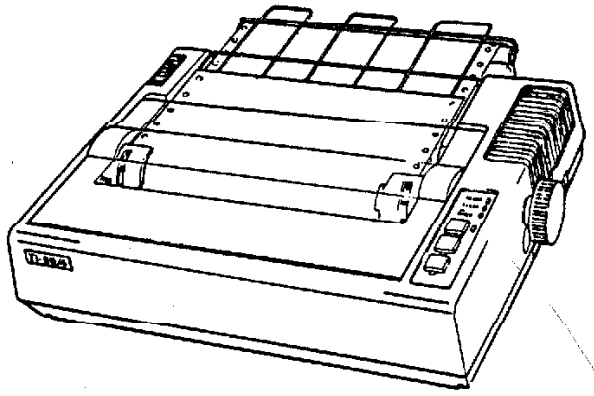
CATALOGUER

```
1 ! TINYCAT, a program by
John Guion, Dallas TI UG and
 taken from Bayou Byte, Feb
1987
2 T$(1)="Dis/Fix" :: T$(2)="
Dis/Var" :: T$(3)="Int/Fix"
:: T$(4)="Int/Var" :: T$(5)=
"Program" :: DISPLAY ERASE A
LL:"Disk? (1-4)"
3 J=J-1 :: CALL HCHAR(23,15,
30+(J=0)*-19):: CALL KEY(0,N
,S):: IF N=13 THEN N=49 ELSE
 IF N<49 OR N>52 THEN 3
4 CALL HCHAR(23,15,N):: OPEN
 #1:"DSK"&CHR$(N)&".",INPUT
,RELATIVE,INTERNAL :: INPUT
#1:A$,J,J,N :: PRINT "Diskna
me=";A$:"Available=";N;" Use
d=";J-N:"Filename  Size    T
ype      P":RPT$("-",28)
5 INPUT #1:A$,I,J,N :: IF A$
="" THEN STOP ELSE PRINT :A$
;TAB(11);J;TAB(17);T$(ABS(I)
);:: IF ABS(I)<>5 THEN PRINT
 N;
6 IF I>0 THEN 5 ELSE PRINT T
AB(22);"Y";:: GOTO 5
```

TI-WRITER DISCUSSION GROUP

With more of our members upgrading to disk, the Committee feels that there may be interest in a TI Writer discussion Group being formed to assist in learning the basics in using the Editor & Formatter. The idea is to conduct the group in a 'discussion' format rather than a 'lecture' atmosphere, so if you are interested in attending on Tuesday, 29th March at WArners Bay High at 7pm, please ring Brian Woods as soon as possible on 662307. Your comments on the topics you would like covered would also be appreciated.

The first meeting will probably cover such things as getting started (always a good place to start any discussion!), a personal letter template and getting into transliteration if time permits, so if you want to learn a little more come along...



FOR SALE

The Group has one of the recently completed 32k Super Carts available for sale for $74. If you missed out on the first lot to go on sale, don't delay, get in touch with Albert Anderson as soon as possible.

THE INFORMATION PAGE

IN YOUR NEWSLETTER THIS MONTH

In the News - a round-up of TI happenings	A. Wright
Impact 99	J. Sughrue
Real Time Clock for the 99/4A	J. Paine
Random Bytes	B. Carmany
Basic Group Class Notes	P. Mulvaney
Graphics Compatability	Bluegrass UG
Assembly Language Program Types	99er Output
American Computer Users Guide to Vegemite	H. Brasher

PLUS MUCH MUCH MORE!!!!!

COMING EVENTS

Next Committee Meeting: Tuesday 5th April, 1988
Next General Meeting: Tuesday 12th April, 1988
Brisbane TI Fair: Saturday, 21st May, 1988

AGENDA FOR APRIL MEETING

Demo of TI Artist Slide Show plus Archiving programs

CLASSES AVAILABLE FOR MEMBERS

BASIC class meets 15 22 March at Warners Bay High
ASSEMBLER drunks will meet 22 March at Albert Andersons
TI WRITER Discussion Group 29 March at Warners Bay High

ANNUAL SUBSCRIPTIONS

Subscriptions to the Group cover the period 1 July to 30 June following year. Membership enquiries are welcome; please address all enquiries to the Secretary.
The annual subscription is:
Australian Residents...$20
Overseas Residents.....$40 (airmail)
$30 (surface)

Back issues of our Newsletter are available for $1 plus postage

C#97 Current

Mr.R. CARMANY
1504 Larson St.
GREENSBORO NC.27407
U.S.A.